Costly decisions, rigid wages, and frictional labor reallocation

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Abstract

We propose a model of labor market dynamics in which choosing a partner is costly, and likewise negotiating a wage is costly. Both costs are derived from an underlying “control cost” framework, which supposes that making any choice with greater precision requires greater expenditures on decision-making. These decision costs imply that both labor relationships and wages are endogenously sticky, and that market participants optimally trade off the costs of errors on the matching and wage-setting margins. In equilibrium, the pattern of matching is intermediate between the random search and directed search specifications, and the wage adjustment hazard is intermediate between the state-dependent and constant-hazard specifications. We study the model’s implications for the comovement of job formation, separation, and wage adjustment in response to idiosyncratic and aggregate shocks.

Keywords: State-dependent wage adjustment, endogenous matching function, logit equilibrium, near rationality, control costs

JEL Codes: E24, E32, J64, D81, C73

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Introduction / Extended abstract

Can wage stickiness cause workers to lose their jobs in response to adverse shocks? Barro (1977) argued that even if wages are typically sluggish, when push comes to shove a worker-firm pair is mutually better off renegotiating the wage than separating in response to a negative shock, as long as their match surplus is positive.

Barro’s argument illustrates the importance of understanding how nominal rigidity (wage stickiness) interacts with labor immobility (matching frictions). Likewise, the macro-labor literature on unemployment volatility has found a strong interaction between matching frictions and wage stickiness. For example, Shimer (2004) found that matching models imply tiny unemployment fluctuations if wages can be renegotiated at any time, but deliver fluctuations of unemployment, vacancies, and tightness as large as those observed in macroeconomic data when wage rigidity is imposed. Macro-labor research has subsequently explored many different specifications for matching frictions and a variety of wage-setting frameworks with more or less nominal rigidity.

This paper proposes a different approach to modeling labor market fluctuations: we derive both matching frictions and wage rigidities from a single underlying model of costly decision-making. In accordance with the game-theoretic concept of “control costs” (Van Damme (1991)), we assume that making any choice with greater precision requires greater expenditure on decision-making. In our context, this assumption initially applies both to the timing of job offers, and to the choice of which job offer to make, namely, whom to contact and what wage to offer. Subsequently, it also applies to decisions to accept or reject offers, and to renegotiate wages or to separate.

On the matching side, our model follows Cheremukhin et al. (2016), who study how a set of men and a set of women sort into couples under a rational inattention constraint. As in their paper, we assume that the cost of each player’s matching decision depends on its entropy, relative to a uniform default distribution. A key step in solving the model is the observation that the underlying decision cost function, defined on the space of names of potential match partners, becomes a cost function defined on the space of types of partners, via a change of measure. This allows us to characterize players’ choice of partners to contact as a weighted multinomial logit across types of partners, with weights that depend on the time-varying frequency of each type. These logits imply matching behavior that is intermediate between a random search model and a directed search model.

The paper of Cheremukhin et al. (2016) considered a single matching event between a given set of men and a given set of women. We extend their model for labor market applications by considering workers and firms (jobs) that match by making wage offers which the receiver can choose to accept or reject. We also extend the dynamic structure of the model by allowing for idiosyncratic and aggregate shocks to labor productivity, and by allowing workers or firms to choose to separate and/or to propose a different wage. While the supply of workers is exogenously fixed, we allow the stock of vacant jobs to expand or shrink, again subject to control costs.

On the wage bargaining side, this paper builds on the authors’ earlier work on price and wage rigidity. Costain and Nakov (2019) proposed a model in which nominal retail prices are sticky because precise decisions are costly; they showed that errors in price adjustments help explain patterns in retail price microdata, while errors in the timing of price adjustments help explain monetary nonneutrality. Subsequently, Costain et al. (2018) extended the model to study price stickiness and wage stickiness.
simultaneously, while abstracting from any frictions in labor reallocation. The bargaining framework of Costain (2017) assumes the same decision cost function but interprets those costs as a quantity of time, which serves to endogenize the sequence of moves in the bilateral bargaining game. The present paper extends that bargaining game by embedding it in a dynamic matching framework, thus addressing the interaction between wage adjustment frictions and labor reallocation frictions. Our state space is no larger than that in the state-dependent pricing literature and related contexts with intermittent, lumpy adjustments, so we can study the impact of aggregate shocks using standard computational techniques for heterogeneous agent models.
References


